

# **INDUSTRIAL, MANUFACTURING, & SYSTEMS ENGINEERING**

## **CAPSTONE PROJECT /INTERNSHIP SUMMARY**

**Your Name:** Julio Perez, Estefania Vazquez, Jose Rocha

**Type of Capstone (research, teaching, practical application):** Senior Project Design

**Capstone Project Title:** Increasing Efficiency in Packaging Equipment

**Year and semester:** Spring 2016



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## INTRODUCTION

Mount Franklin Foods is a leading North American manufacturer of high quality confections and nut products based in El Paso, Texas. The Azar Nut processing plant in El Paso offers a broad line of packaged and bulk nuts, seeds, snack mixes, trail mixes, dried fruit and peanut butter.

- Methods and processes used by the company have remained the same throughout the years, making production go slowly every year due to demand increase and introduction of a variety of new products.
- AZAR Nut Company assigned the team to increase the efficiency in the packaging machines. In order to do so, data to calculate the actual efficiency needed to be gathered.
- 16 machines running 16 hours/day was taking into account when calculating the efficiency to later on compare with the improved efficiency.
- After evaluating the data obtained, and doing a root cause analysis, the team along with the engineer were drawn to the conclusion that the three main causes of down time were waiting on product, waiting on material and lunch.
- In order to tackle the three main contributors to downtime, the team decided the materialist techniques, the dumping station, lunch and the WIP area needed the following arrangements:
  - Materialists techniques: One of the observations of the team was the inaccurate label and film count. By investigating the conclusion reached was that weighing machine was currently calibrated in .5 lb increments. Inaccurate weighing system as well as inaccurate calculation of labels. The proposed solution is to order a new scale with smaller calibration. Another change needed was to modify materialist's table; eliminate unnecessary information to avoid confusion and facilitate task as well as standardize materialist's work.
  - Dumping Station: The operator did not turn in an official linesheet, therefore is not controlled and is missing information. A new worksheet was created in order to standardize work as well as have the correct amount of data needed. An an electronic stamping machine, in order to have more accurate time.
  - Lunch: Form line packaging teams: There will be two groups on each packaging line, so when one group goes to lunch the other will be backing them up, and vice versa. An operator from the 2nd shift will train the 1st shift.
  - WIP Area: The team implemented 5S methodology by following the "A place for everything and a label for every place" technique in order to organize the area.

Implementation of a calculated number of pallet racks in WIP area was essential thanks to their design that allows them to make up of the vertical space instead of the floor space. Routine 5S Form was created in order to sustain. It is recommended that the form is filled out every two weeks.

- The project was completed on time thanks to the way the time was managed. A Gunt Chart was created in order to track the time for each activity. The team made a compromise to attend to meetings, the company and whatever was needed in order to work towards reaching the goal of the project.

### **PROJECT OUTCOMES**

In order to increase the efficiency of the machines The team went through a set of solutions and implemented methodologies such as 5S and “a place for everything and label for every place in order to tackle our downtime in Waiting on Product, Waiting on Material and Lunch. The results show an average of 7.28% efficiency increase. The meaning in dollars of these improvements are for example, if a 5 day week with 2 shifts of 8 hrs each is considered, the dollars saved per week in Bulk Machine:\$18,265.65 or H12 Machine:\$19,669.54

In our experience we will not change anything that was done in this project because it is a life experience that will help us in future challenges to face in the industry.

The efficiencies improvement was deffinitely rewarding, reaching a goal by implementing the Industrial Engineering Tools acquired during university was not the only benefit out of The Senior Design Project. The knowledge obtained after facing a real life problems, the experience learned, and the support of the people working together towards reaching the same goal were satisfying and enriching.

### **INDUSTRIAL ENGINEERING PROGRAM ASSESSMENT**

The program is very helpful, because it prepares the student for the real world. It sets expectations for what is coming after graduation in the workplace.

The laboratories were very enjoyable because students learned how to simulate and use several different programs that will be very helpful tools in the workplace.

